

ASSIGNMENT 8

Textbook Assignment: "Refrigeration and Air Conditioning" chapter 6, pages 6-23 through 6-52 and chapter 7, pages 7-1 through 7-46.

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| <p>8-1. The condenser in a self-contained refrigeration system is installed in what general location?</p> <ol style="list-style-type: none">1. An uninsulated compartment2. An insulated compartment3. A hermetically sealed compressor unit4. An outside area for increased cooling <p>8-2. Reach-in refrigerators have a storage capacity of</p> <ol style="list-style-type: none">1. 10 cubic feet or greater2. 15 cubic feet or greater3. 20 cubic feet or less4. 25 cubic feet or less <p>8-3. In a typical self-contained reach-in refrigerator, the evaporator is mounted at what location?</p> <ol style="list-style-type: none">1. On the side of the upper portion of the food compartment2. On the side of the lower portion of the food compartment3. In the center of the upper portion of the food compartment4. In the center of the lower portion of the food compartment <p>8-4. Which of the following types of refrigerants can be used in small capacity, reach-in refrigerators?</p> <ol style="list-style-type: none">1. R-222. R-1253. R-5024. R-717 | <p>8-5. What factor distinguishes the two types of walk-in refrigerators?</p> <ol style="list-style-type: none">1. Location of the compressor2. Location of the condenser3. Type of evaporator4. Inside temperature <p>8-6. What type of refrigerant is used in most domestic refrigerators?</p> <ol style="list-style-type: none">1. R-122. R-223. R-134a4. R-717 <p>8-7. What type of compressor is used on a single door domestic refrigerator?</p> <ol style="list-style-type: none">1. External drive2. Open3. Rotary4. Hermetic <p>8-8. What type of automatic defrosting system uses the heat in the vapor from the compressor discharge line and the condenser to defrost the evaporator?</p> <ol style="list-style-type: none">1. Forced air2. Hot gas3. Direct evaporation4. Instantaneous |
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8-9. In a frost-free refrigerator-freezer, the evaporator is at what location?

1. At the bottom, inside the refrigeration compartment
2. At the top, inside the refrigeration compartment
3. On the side, inside the freezer compartment
4. Outside the refrigeration compartment

8-10. What type of water cooler only cools water when it is being drawn?

1. Instantaneous
2. Storage
3. Dispenser
4. Bottle

8-11. What component of a water cooler pre-cools the fresh water line to the evaporator?

1. The condenser
2. The storage tank
3. The heat exchanger
4. The cold water dispenser

8-12. Many manufacturers of ice machines have switched from using R-22 to

1. R-404a
2. R-134a
3. R-502
4. R-717

8-13. When installing a refrigeration system, you must not allow dirt, scale, or moisture to enter any part of the system.

1. True
2. False

8-14. You should take what action if there is a question about the cleanliness of the piping to be used in the installation of a refrigeration system?

1. Rod out each length of pipe with a cloth swab
2. Use a strong blast of air to blast out each length of pipe
3. Flush each length of pipe with fresh water
4. Discard the piping and replace with new pipe

8-15. The corrosion in a refrigeration system results from hydrochloric acid which is formed by

1. R-12 coming in contact with air
2. R-12 coming in contact with compressor oil
3. R-12 coming in contact with scale
4. R-12 coming in contact with water

8-16. Water-cooled condensers require a free area equal to the

1. length of the evaporator
2. width of the evaporator
3. length of the condenser
4. width of the condenser

8-17. Service openings and inspection panels on unitary equipment require what minimum distance?

1. 6 inches
2. 12 inches
3. 18 inches
4. 24 inches

- 8-18. What malfunction can occur if there is inadequate ventilation around an air-cooled condenser?
1. The condenser overheats
 2. The motor overloads
 3. Ice forms in the expansion valve
 4. Sludge builds up in the condenser
- 8-19. On a closed-coupled installation, both the suction and liquid lines are to be ran overhead. This type of installation will assist in the elimination of
1. vibration strains
 2. relief valves
 3. cooling coil traps
 4. siphoning of liquid from the receiver
- 8-20. When preparing a pipe fitting for making silver solder joints, you should use what type of material to brighten up the ends?
1. Emery cloth
 2. Steel wool
 3. Crocus cloth
 4. Sandpaper
- 8-21. Parallel operation of two or more reciprocating compressors should be avoided unless there is a strong and valid reason for not using a single compressor.
1. True
 2. False
- 8-22. When installing two compressors of different sizes, you should take what action to ensure proper operation?
1. Change pulleys to two different sizes
 2. Adjust the height of the bases so they are the same level
 3. Change the drive belts so they run at the same speed
 4. Install a check valve in the equalizer line so pressure remains constant in each compressor
- 8-23. You should NEVER use a single equalizer line on compressors having two equalizer tapings.
1. True
 2. False
- 8-24. When using two compressors and the condensers are more than 10 feet above the compressors, you should install what additional component in the horizontal discharge line?
1. V-trap
 2. Oil filter
 3. Oil separator
 4. Water separator
- 8-25. If an oil separator is used at the bottom of a discharge riser, what component is eliminated?
1. Double riser
 2. Suction line
 3. Liquid line
 4. Hot gas discharge riser

- 8-26. When refrigerants are being transferred, the amount of refrigerant that may be placed in a cylinder is
1. 65 percent of the tare weight
 2. 75 percent of the tare weight
 3. 85 percent of the tare weight
 4. 95 percent of the tare weight
- 8-27. When transferring refrigerants, you should place what device in the charging line to the service cylinder?
1. One-way check valve
 2. Pressure relief valve
 3. Poppet valve
 4. Shutoff valve
- 8-28. When a refrigeration system is excavated, which of the following valves is NOT required to be open to allow the vacuum pump to draw back through the receiver and condenser to the compressor?
1. Discharge service valve
 2. Expansion valve
 3. Receiver service valve
 4. Condenser service valve
- 8-29. When evacuating a refrigeration system, you should allow the vacuum pump to draw a vacuum of at least
1. 10 inches
 2. 15 inches
 3. 20 inches
 4. 25 inches
- 8-30. In most small refrigerating systems, high-side charging is recommended for adding refrigerant after repairs have been made.
1. True
 2. False
- 8-31. A halide leak detector is NOT used to detect which of the following refrigerants?
1. R-12
 2. R-22
 3. R-170
 4. R-502
- 8-32. When you are performing a halide leak test, what color does the flame turn when the halogen refrigerant contacts the reactor plate?
1. Yellow
 2. Blue
 3. Orange
 4. Green
- 8-33. What term is used to describe the process of cleaning refrigerant for reuse by oil separation?
1. Recovery
 2. Reclaiming
 3. Recycling
 4. Refresh
- 8-34. When you are reclaiming refrigerant, the liquid refrigerant is stored in a storage chamber where it is cooled. What component is responsible for cooling the refrigerant?
1. The evaporator assembly
 2. The receiver and purge unit
 3. The recycle solenoid
 4. The oil separator accumulator

- 8-35. Which of the following actions is NOT to be performed when removing a compressor from a refrigeration system?
1. Remove the drive belt or disconnect the drive coupling
 2. Plug all openings through which refrigerant flows
 3. Pump down the system
 4. Remove the suction and discharge lines from the compressor service valves
- 8-36. What component is installed in the liquid line to absorb moisture in the refrigeration system?
1. Separator
 2. Water filter
 3. Dehydrator
 4. Evaporator
- 8-37. You should defrost plate-type evaporators in below-freezing refrigerators when ice has built up to what thickness?
1. 1/8 inch
 2. 1/4 inch
 3. 1/2 inch
 4. 3/4 inch
- 8-38. Operation and maintenance logs assist you in spotting trouble in the equipment.
1. True
 2. False
- 8-39. Which of the following is a type of maintenance log entry?
1. Ambient temperature
 2. Operating hours
 3. Material used
 4. Condenser pressure and temperature
- 8-40. Maintenance logs can be used to determine future budget requirements.
1. True
 2. False
- 8-41. Air conditioning is the process of conditioning the air in a space to maintain a predetermined temperature-humidity relationship to meet comfort or technical requirements.
1. True
 2. False
- 8-42. What type of chart is used to calculate effective temperature?
1. Atmospheric
 2. Temperature conversion
 3. Hygrometric
 4. Psychrometric
- 8-43. The specific effective temperature within the zone at which most people feel comfortable is identified as the
1. comfort line
 2. optimum line
 3. psychrometric line
 4. hygrometric line

- 8-44. What instrument is used to determine relative humidity?
1. Modified wet-bulb thermometer
 2. Hygrometer
 3. Sling psychrometer
 4. Humidistat gauge
- 8-45. When air becomes saturated with moisture, the wet-bulb, dry-bulb, and dew point temperatures are all the same and the relative humidity is what percent?
1. 70%
 2. 80%
 3. 90%
 4. 100%
- 8-46. What control device in an air conditioner is sensitive to various degrees of humidity?
1. Hygromistat
 2. Humidistat
 3. Thermostat
 4. Hydromostat
- 8-47. What method of air cleaning is by far the most effective; however, it is also the most expensive?
1. Magnetic
 2. Electrical
 3. Air washing
 4. Fiber filter
- 8-48. Air is circulated by either an axial fan or radial fan mounted in an enclosure. These enclosed fans are known as
1. excavators
 2. eliminators
 3. blowers
 4. movers
- 8-49. The velocity of air is the primary factor that determines what temperature and humidity are required to produce comfort.
1. True
 2. False
- 8-50. Window mounted air-conditioning units range in size from 4,000 to 36,000 Btu and floor-mounted units range from 24,000 to 360,000 Btu per hour.
1. True
 2. False
- 8-51. What type of air-conditioning system is used for central refrigeration plants?
1. Heat pump
 2. Chilled-water
 3. Floor mounted
 4. Window mounted
- 8-52. The two types of water coolers most often used for chilled water air conditioning are the flooded-shell-and-tube cooler and the
1. pneumatic cooler
 2. chilled-water cooler
 3. dry-expansion cooler
 4. air-cooled cooler
- 8-53. What two chemicals form a hard scale on the walls of water tubes that reduce their efficiency?
1. Mercury and oxides
 2. Carbon and salt
 3. Potassium and hydroxides
 4. Lime and iron

8-54. Never add water to acid because it may result in an explosion that could severely injure you.

1. True
2. False

8-55. The oil level in the compressor of an air-conditioning system should be checked

1. daily
2. monthly
3. weekly
4. annually

8-56. If liquid refrigerant contacts a person's eyes, that person must be taken to a doctor immediately.

1. True
2. False

8-57. Cooling towers are classified as natural draft, induced draft, or

1. partial draft
2. closed draft
3. open draft
4. forced draft

8-58. What type of wood is the standard construction material for cooling towers?

1. Knotted pine
2. Oak
3. Redwood
4. Walnut

8-59. A compressor is a pump that compresses refrigerant gas.

1. True
2. False

8-60. Which of the following is NOT a type of compressor?

1. Rotary
2. Centrifugal
3. Cyclical
4. Reciprocating

8-61. The term "hermetic unit" means that the motor rotor and compressor crankshaft of a refrigeration system are in a gas-tight housing that has been welded shut.

1. True
2. False

8-62. The humidity-sensitive device that controls the equipment that maintains a predetermined humidity in the space in which it is installed is a

1. thermostat
2. hydrometer
3. humidifier
4. humidistat

8-63. For troubleshooting an air-conditioning system, your best reference is the manufacturer's manual.

1. True
2. False

8-64. The saturation temperature of a liquid or vapor increases according to the pressure exerted on it.

1. True
2. False

- 8-65. The three types of air-conditioning compressors in general use in automobiles are the two-cylinder reciprocating, swash plate, and
1. universal
 2. ten-cylinder
 3. scotch yoke
 4. electromatic
- 8-66. The three types of suction pressure-regulating valves used are the suction throttling valve (STV), evaporator pressure regulator (EPR), and the
1. pressure control valve (PCV)
 2. suction depression valve (SDV)
 3. pilot-operated absolute valve (POA)
 4. temperature equalizer valve (TEV)
- 8-67. The fastest way to find a condition is to work with the proven diagnostic charts and the proper special tools for the air-conditioning system you are working on.
1. True
 2. False
- 8-68. You must always wear safety glasses when servicing any part of an air-conditioning system.
1. True
 2. False
- 8-69. What federal agency has established that all technicians who maintain air-conditioning systems must be certified?
1. Department of the Navy
 2. Defense Department
 3. Environmental Protection Agency (EPA)
 4. Department of Labor
- 8-70. Standard air-conditioning certification is divided into levels corresponding to the type of service a technician performs. How many types of technician certification are there?
1. One
 2. Two
 3. Three
 4. Four
- 8-71. The function of what component of a duct system is designed to deliver a concentrated air stream into a room?
1. Diffuser
 2. Grill
 3. Register
 4. Damper
- 8-72. A radial-flow fan is normally belt-driven.
1. True
 2. False